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Yunbo Cao

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EXAMINER

COUGHLAN, PETER D

ART UNIT

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2129

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/732,741	Applicant(s) CAO ET AL.	
	Examiner PETER COUGHLAN	Art Unit 2129	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 May 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5,6,9,11-22,25-29,31,32,34-36 and 38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5,6,9,11-22,25-29,31,32,34-36 and 38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12/10/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

1. This office action is in response to an AMENDMENT entered May 27, 2008 for the patent application 10/732741 filed on December 10, 2003.
2. All previous Office Actions are fully incorporated into this Final Office Action by reference.
3. Examiner's Comment: Although, the terms 'carrier wave' or 'carrier signal' is not specifically mentioned within the specification, the Examiner will exclude these interpretations wherein the context of 'storage medium' is disclosed.

Status of Claims

4. Claims 1-3, 5, 6, 9, 11-22, 25-29, 31, 32, 34-36, 38 are pending.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 27-29, 31, 32, 34-36, 38 are rejected under 35 U.S.C. 101 for nonstatutory subject matter. The computer system must set forth a practical application of that § 101 judicial exception to produce a real-world result. Benson, 409 U.S. at 71-72, 175 USPQ at 676-77. The invention is ineligible because it has not been limited to a substantial practical application. Having two classifiers which classify is not a practical application. Any function is considered a classifier, but without a practical domain, the claims and specification remain an abstract concept. The result has to be a practical application.

In determining whether the claim is for a “practical application,” the focus is not on whether the steps taken to achieve a particular result are useful, tangible and concrete, but rather that the final result achieved by the claimed invention is “useful, tangible and concrete.” If the claim is directed to a practical application of the § 101 judicial exception producing a result tied to the physical world that does not preempt the judicial exception, then the claim meets the statutory requirement of 35 U.S.C. § 101. Receiving labeled and unlabeled data and training two classifiers based on this data does not constitute a practical application.

The invention must be for a practical application and either:

- 1) specify transforming (physical thing) or
- 2) have the FINAL RESULT (not the steps) achieve or produce a useful (specific, substantial, AND credible), concrete (substantially repeatable/ non-unpredictable), AND tangible (real world/ non-abstract) result.

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A claim that is so broad that it reads on both statutory and non-statutory subject matter, must be amended.

The invention must provide a real world practical application and not an outline which can be implemented in numerous applications. There must be a result that is a practical application.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5, 6, 11-12, 18-20, 22, 25-29, 31, 32, 34-36, 38 are rejected under 35 U.S.C. 102(b) (hereinafter referred to as **Masuichi**) being anticipated by Masuichi, 'A bootstrapping method for extracting bilingual text pairs.'

Claim 1

Masuichi teaches receiving labeled data (**Masuichi**, p1067, C2:42 through p1068, C1:18; 'Labeled data' of applicant is equivalent to '100 pairs' of a training corpus of Masuichi.); receiving unlabeled data (**Masuichi**, p1067, C2:42 through p1068, C1:18;

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'Unlabeled data' of applicant is equivalent to '1000 English-Japanese patent text pairs' of Masuichi.); constructing a first classifier and a second classifier using the labeled data (**Masuichi**, p1067, C2:42 through p1068, C1:18; Construction of a first and second classifier of applicant is equivalent to 'create an initial word space' of the initial pairs of words of Masuichi.); performing uncertainty reduction comprising: selecting a instances from the unlabeled data that are uncertain with respect to the first classifier (**Masuichi**, p1068, C1:19-42; 'Unlabeled data' ... 'respect to the first classifier' of applicant is equivalent to calculating '1000 English patent vectors' of Masuichi.); and selecting instances from the unlabeled data that are uncertain with respect to the second classifier (**Masuichi**, p1068, C1:19-42; 'Unlabeled data' ... 'respect to the second classifier' of applicant is equivalent to calculating '1000 Japanese patent vectors' of Masuichi.); labeling the instances uncertain to the first classifier using the second classifier to form a first labeled set: and labeling the instances uncertain to the second classifier using the first classifier to form a second labeled set. (**Masuichi**, p1068, C1:19-42; 'Labeling the instances uncertain to the first classifier using the second classifier' and 'second classifier using the first classifier to form a second labeled set' of applicant is illustrated by 'Next we extracted the English-Japanese patent pairs which satisfied the simple condition that the English patent vector in the pair has (the biggest cosine) with the Japanese patent vector in the pair among the 1000 Japanese patent vectors and vice versa' of Masuichi.) reconstructing the first classifier and the second classifier based on the first labeled set and the second labeled set (**Masuichi**, p1068, C1:19-42; Reconstructing both first and second classifiers are done

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by catenation the 10 mutual proximity pairs to the initial 100 translation pairs of Masuichi.); providing the reconstructed first classifier and the reconstructed second classifier for use in labeling data. (**Masuichi**, p1068, C1:42 through C2:2; Providing the reconstructed first and second classifiers of applicant is equivalent to the '110 English-Japanese pairs' of Masuichi.) wherein selecting instances uncertain to the first classifier includes selecting instances of the unlabeled data as a function of uncertainty (**Masuichi**, p1067, C2:5-29; 'Function of uncertainty' of applicant is disclosed by the cosine of the angle between the two vectors of Masuichi.); wherein selecting instances of the unlabeled data as a function of uncertainty comprises calculating at least one value of uncertainty used to select the instances uncertain to the first classifier (**Masuichi**, p1068, C1: 'Value of uncertainty' of applicant is disclosed by the cosine between two vectors. The more elements which are common between the two vectors, the greater cosine value and a lower 'value of uncertainty'); and wherein selecting instances uncertain to the first classifier includes selecting instances having a value of uncertainty that is compared to a predetermined threshold. (**Masuichi**, p1068, C1: 'Predetermined threshold' of applicant is disclosed by only the '10 most reliable mutual proximity pairs' of Masuichi.)

Claim 2

Masuichi teaches receiving labeled data includes receiving data assigned to classes and wherein receiving unlabeled data includes receiving data capable of being

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assigned to classes. . (**Masuichi**, p1067, C2:5-29; 'Data assigned to classes' of applicant is equivalent to 'n content bearing words' of Masuichi.)

Claim 3

Masuichi teaches reconstructing the first and second classifiers using at least the first labeled set. (**Masuichi**, p1068, C1:43 through C2:2; 'Reconstruction' of applicant is disclosed by the now increased '110 English-Japanese pairs' of Masuichi.)

Claim 5

Masuichi teaches selecting instances as a function of uncertainty includes calculating probabilities. (**Masuichi**, p1067, C2:5-29; 'Calculating probabilities' of applicant is disclosed by the cosine of the angle between the two vectors of Masuichi. The greater the cosine value, the lower the uncertainty probabilities.)

Claim 6

Masuichi teaches calculating probabilities includes calculating probabilities that the first classifier is unable to label some instances of the unlabeled data. (**Masuichi**, p1068, C1: 'Unable to label of applicant is illustrated by pairs which fall below the '10 most reliable mutual proximity pairs' of Masuichi.)

Claim 11

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Masuichi teaches exchanging information between the first labeled and the second labeled set to form at least one shared set. (**Masuichi**, p1068, C1:43 through C2:2; the formation of a ‘shared set’ of applicant is equivalent to ‘English-Japanese pairs’ of Masuichi.)

Claim 12

Masuichi teaches reconstructing the first and second classifiers using the at least one shared set. (**Masuichi**, p1068, C1:43 through C2:2; ‘Reconstruction’ of applicant is disclosed by the now increased ‘110 English-Japanese pairs’ of Masuichi.)

Claim 18

Masuichi teaches selecting unlabeled data that is relatively certain with respect to the first classifier. (**Masuichi**, p1068, C1:19-42; ‘Selecting unlabeled data that is relative’ of applicant is equivalent to ‘extract English-Japanese pairs’ of Masuichi.)

Claim 19

Masuichi teaches selecting relative certain unlabeled data includes selecting the most certain unlabeled data with respect to the first classifier. (**Masuichi**, p1068, C1:19-42; ‘Selecting unlabeled data that is relative which is most certain’ of applicant is equivalent to ‘extract English-Japanese pairs which satisfied the simple condition ... highest proximity’ of Masuichi.)

Claim 20

Masuichi teaches selecting instances uncertain to the first classifier includes selecting data in the certain data. (**Masuichi**, p1068, C1:19-42; 'Selecting instances uncertain to the first classifier includes selecting data in the certain data' of applicant is equivalent to 'extract English-Japanese pairs which satisfied the simple condition ... highest proximity' of Masuichi.)

Claim 22

Masuichi teaches constructing a first classifier and a second classifier using received labeled instances (**Masuichi**, p1067, C2:42 through p1068, C1:18; Construction of a first and second classifier of applicant is equivalent to 'create an initial word space' of the initial pairs of words of Masuichi.); using the first classifier to select unlabeled instances that are certain with respect to the first classifier (**Masuichi**, p1068, C1:19-42; 'Unlabeled instances' ... 'respect to the second classifier' of applicant is equivalent to calculating '1000 English patent vectors' of Masuichi.) selecting instances uncertain with respect to the second classifier data from among the instances certain with respect to the first classifier to form a first set of unlabeled instances (**Masuichi**, p1068, C1:19-42; 'Selecting instances uncertain to the second classifier ... with respect to the first classifier to form a first set' of applicant is illustrated by 'Next we extracted the English-Japanese patent pairs which satisfied the simple condition that the English patent vector in the pair has (the biggest cosine) with the Japanese patent vector in the pair among the 1000 Japanese patent vectors and vice versa' of Masuichi.) using the

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second classifier to select unlabeled instances that are certain with respect to the second classifier (**Masuichi**, p1068, C1:19-42; 'Unlabeled instances' ... 'respect to the second classifier' of applicant is equivalent to calculating '1000 Japanese patent vectors' of Masuichi.); and selecting instances uncertain with respect to the first classifier from among the instances certain with respect to the second classifier to form a second set of unlabeled instances. (**Masuichi**, p1068, C1:19-42; 'Selecting instances uncertain to the first classifier ... with respect to the second classifier to form a second set' of applicant is illustrated by 'Next we extracted the English-Japanese patent pairs which satisfied the simple condition that the English patent vector in the pair has (the biggest cosine) with the Japanese patent vector in the pair among the 1000 Japanese patent vectors and vice versa' of Masuichi.) reconstructing the first classifier and the second classifier using the first set of unlabeled instances and the second set of unlabeled instances (**Masuichi**, p1068, C1:19-42; Reconstructing both first and second classifiers are done by catenation the 10 mutual proximity pairs to the initial 100 translation pairs of Masuichi.); and providing the reconstructed first classifier and the reconstructed second classifier for labeling textual data to ascertain a meaning of the textual data. (**Masuichi**, p1068, C1:42 through C2:2; Providing the reconstructed first and second classifiers of applicant is equivalent to the '110 English-Japanese pairs' of Masuichi.)

Claim 25

Masuichi teaches reconstructing the first and the second classifiers includes iteratively reconstructing the first and the second classifiers for each class of unlabeled instances. (**Masuichi**, p1068, C1:43 through C2:8; reconstruction by 'iteration' of applicant is equivalent to 'Nth stage' of Masuichi.)

Claim 26

Masuichi teaches wherein the modified first classifier and the modified second classifier are provided to perform one of web pages classification, bilingual bootstrapping and news article classification. (**Masuichi**, abstract; 'Bootstrapping' of applicant is equivalent to 'boot strapping' of Masuichi.)

Claim 27

Masuichi teaches receiving labeled data (**Masuichi**, p1067, C2:42 through p1068, C1:18; 'Labeled data' of applicant is equivalent to '100 pairs' of a training corpus of Masuichi.); receiving unlabeled data (**Masuichi**, p1067, C2:42 through p1068, C1:18; 'Unlabeled data' of applicant is equivalent to '1000 English-Japanese patent text pairs' of Masuichi.); constructing a first classifier and a second classifier using the labeled data (**Masuichi**, p1067, C2:42 through p1068, C1:18; Construction of a first and second classifier of applicant is equivalent to 'create an initial word space' of the initial pairs of words of Masuichi.); using the first classifier to select some of the unlabeled data that is certain with respect to the first classifier (**Masuichi**, p1068, C1:19-42; 'Unlabeled data' ... 'respect to the first classifier' of applicant is equivalent to calculating '1000 English

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patent vectors' of Masuichi.); selecting unlabeled data uncertain with respect to the second classifier from among the unlabeled data that is certain with respect to the first classifier to form a first set of unlabeled data (**Masuichi**, p1068, C1:19-42; 'Selecting unlabeled data' with respect to the 'second classifier' to 'form a first set' of applicant is illustrated by 'Next we extracted the English-Japanese patent pairs which satisfied the simple condition that the English patent vector in the pair has (the biggest cosine) with the Japanese patent vector in the pair among the 1000 Japanese patent vectors and vice versa' of Masuichi.); and using the second classifier to select some of the unlabeled data that is certain with respect to the second classifier (**Masuichi**, p1068, C1:19-42; 'Unlabeled data' ... 'respect to the second classifier' of applicant is equivalent to calculating '1000 Japanese patent vectors' of Masuichi.); and selecting unlabeled data uncertain with respect to the first classifier from among the unlabeled data that is certain with respect to the second classifier to form a second set of unlabeled data (**Masuichi**, p1068, C1:19-42; 'Selecting unlabeled data' with respect to the 'first classifier' to 'form a second set' of applicant is illustrated by 'Next we extracted the English-Japanese patent pairs which satisfied the simple condition that the English patent vector in the pair has (the biggest cosine) with the Japanese patent vector in the pair among the 1000 Japanese patent vectors and vice versa' of Masuichi.) reconstructing the first classifier and the second classifier based on the first set of unlabeled data (**Masuichi**, p1068, C1:19-42; Reconstructing both first and second classifiers are done by catenation the 10 mutual proximity pairs to the initial 100 translation pairs of Masuichi.); and providing the reconstructed first classifier and the

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reconstructed second classifier for use in labeling textual data to ascertain a meaning of the textual data. (**Masuichi**, p1068, C1:42 through C2:2; Providing the reconstructed first and second classifiers of applicant is equivalent to the '110 English-Japanese pairs' of Masuichi.)

Claim 28

Masuichi teaches receiving unlabeled data includes receiving data capable of being assigned to classes, and wherein receiving labeled data includes receiving data assigned to classes. (**Masuichi**, p1067, C2:5-29; 'Data assigned to classes' of applicant is equivalent to 'n content bearing words' of Masuichi.)

Claim 29

Masuichi teaches reconstructing the first and the second classifier for each class. (**Masuichi**, p1068, C1:43 through C2:2; 'Reconstruction' of applicant is disclosed by the now increased '110 English-Japanese pairs' of Masuichi.)

Claim 31

Masuichi teaches augmenting the received labeled data with the first labeled set and the second labeled set to form an augmented set. (**Masuichi**, p1068, C1:19-42; The formation of an 'augmented set' of applicant is equivalent to 'concatenated the 10 mutual-proximity pairs to the initial 100 translation pairs' of Masuichi.)

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Claim 32

Masuichi teaches using the augmented set of labeled data to retrain the first classifier and the second classifier to form a retrained first classifier and a retrained second classifier. (**Masuichi**, p1068, C1:43 through C2:2; Retraining the first and second classifier of applicant is equivalent to 'created a new word space regarding the 110 English-Japanese pairs' of Masuichi.)

Claim 34

Masuichi teaches calculating probabilities includes calculating values of uncertainty. (**Masuichi**, p1067, C2:5-29; 'Calculating probabilities' of applicant is disclosed by the cosine of the angle between the two vectors of Masuichi. The greater the cosine value, the lower the uncertainty probabilities.)

Claim 35

Masuichi teaches calculating values of uncertainty includes calculating values of uncertainty relative to a predetermined threshold. (**Masuichi**, p1068, C1: 'Predetermined threshold' of applicant is disclosed by only the '10 most reliable mutual proximity pairs' of Masuichi.)

Claim 36

Masuichi teaches receiving labeled data including instances of data and a label for each instance, the label being indicative of an assigned class for each instance

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(**Masuichi**, p1067, C2:42 through p1068, C1:18; 'Labeled data' of applicant is equivalent to '100 pairs' of a training corpus of Masuichi.); receiving unlabeled data including unlabeled instances of data (**Masuichi**, p1067, C2:42 through p1068, C1:18; 'Unlabeled data' of applicant is equivalent to '1000 English-Japanese patent text pairs' of Masuichi.); constructing a first classifier and a second classifier with the received labeled data (**Masuichi**, p1067, C2:42 through p1068, C1:18; Construction of a first and second classifier of applicant is equivalent to 'create an initial word space' of the initial pairs of words of Masuichi.); selecting a first portion of the unlabeled instances of data that is uncertain for the first classifier (**Masuichi**, p1068, C1:19-42; 'Unlabeled data' ... 'Uncertain for the first classifier' of applicant is equivalent to calculating '1000 English patent vectors' of Masuichi.); and assigning classes to the first portion of the unlabeled data using instances of the second classifier to form a first labeled set (**Masuichi**, p1068, C1:19-42; 'Assigning classes ... using the second classifier ... form a first set' of applicant is illustrated by 'Next we extracted the English-Japanese patent pairs which satisfied the simple condition that the English patent vector in the pair has (the biggest cosine) with the Japanese patent vector in the pair among the 1000 Japanese patent vectors and vice versa' of Masuichi.); selecting a second portion of the unlabeled data that is uncertain for the second classifier (**Masuichi**, p1068, C1:19-42; 'Unlabeled data' ... 'uncertain for the second classifier' of applicant is equivalent to calculating '1000 Japanese patent vectors' of Masuichi.); and assigning classes to the second portion of the unlabeled instances of data uncertain for the second classifier using the first classifier to form a second labeled set (**Masuichi**, p1068, C1:19-42; 'Assigning classes

... using the second classifier ... form a second set' of applicant is illustrated by 'Next we extracted the English-Japanese patent pairs which satisfied the simple condition that the English patent vector in the pair has (the biggest cosine) with the Japanese patent vector in the pair among the 1000 Japanese patent vectors and vice versa' of Masuichi.); reconstructing the first classifier and the second classifier based on the first labeled set and the second labeled set (**Masuichi**, p1068, C1:19-42; Reconstructing both first and second classifiers are done by catenation the 10 mutual proximity pairs to the initial 100 translation pairs of Masuichi.); and providing the reconstructed first classifier and the reconstructed second classifier for use in labeling data. (**Masuichi**, p1068, C1:42 through C2:2; Providing the reconstructed first and second classifiers of applicant is equivalent to the '110 English-Japanese pairs' of Masuichi.)

Claim 38

Masuichi teaches wherein the modified first classifier and the modified second classifier are used for one of web page classification, bilingual bootstrapping and news page classification. (**Masuichi**, abstract; 'Bootstrapping' of applicant is equivalent to 'boot strapping' of Masuichi.)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 13-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masuichi as set forth above, in view of Yu. ('Chinese-English bilingual speech recognition', referred to as **Yu**)

Claim 13

Masuichi does not teach labeling the instances uncertain to the first classifier includes assigning instances in the first labeled set to a first set of classes, and wherein labeling the instances uncertain to the second classifier includes assigning instances in the second labeled set to be a second set of classes.

Yu teaches labeling the instances uncertain to the first classifier includes assigning instances in the first labeled set to a first set of classes, and wherein labeling the instances uncertain to the second classifier includes assigning instances in the second labeled set to be a second set of classes. (**Yu**, p605, Table 1; 'Classes' of applicant is equivalent to 'phonemes' of Yu. First and second classifier of applicant is equivalent to English and Chinese of Yu. Both languages are made up of phonemes.) It

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would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Masuichi by using classes as taught by Yu to labeling the instances uncertain to the first classifier includes assigning instances in the first labeled set to a first set of classes, and wherein labeling the instances uncertain to the second classifier includes assigning instances in the second labeled set to be a second set of classes.

For the purpose of using the basic element which is common to all languages and set them up as classes

Claim 14

Masuichi does not teach the first set of classes and the second set of classes are the same.

Yu teaches the first set of classes and the second set of classes are the same. (Yu, p606, Table 2; For a given phoneme of a word resides in the same phoneme class in both English and Chinese such as 'b'.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Masuichi by having some classes in common as taught by Yu to have the first set of classes and the second set of classes are the same.

For the purpose of aiding the translation from one language into another.

Claim 15

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Masuichi does not teach first set of classes and the second set of classes are different.

Yu teaches first set of classes and the second set of classes are different. (Yu, p606, Table 2; For a given phoneme of a word resides in different phoneme classes in English and Chinese such as 'e'.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Masuichi by having some classes being different according to their respective classifier as taught by Yu to have the first set of classes and the second set of classes are different.

For the purpose of being able to bridge the differences of two different which is inherent among different languages.

Claim 16

Masuichi does not teach first set of classes and the second set of classes are mutually exclusive.

Yu teaches first set of classes and the second set of classes are mutually exclusive. (Yu, p606, Table 2; Far a given phoneme of a word which resides in classes which are mutually exclusive such as 'l' in Chinese.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Masuichi by having some classes which are mutually exclusive as taught by Yu to have the first set of classes and the second set of classes are mutually exclusive.

For the purpose of being able to handle data in which at times data is mutually exclusive due to the reality that not all classes overlap one another.

Claim 17

Masuichi does not teach first set of classes and the second set of classes overlap by having classes in common.

Yu teaches first set of classes and the second set of classes overlap by having classes in common. (Yu, p606, Table 2; Classes which are overlapping of applicant is disclosed by the class of 'glides' of Yu.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Masuichi by having some classes overlapping classes from another classifier as taught by Yu to have the first set of classes and the second set of classes overlap by having classes in common.

For the purpose of being able to handle data in which at times data is overlapping due to the reality that not all classes are mutual independent.

Response to Arguments

6. Applicant's arguments filed on May 27, 2008 for claims 1-3, 5, 6, 9, 11-22, 25-29, 31, 32, 34-36, 38 have been fully considered but are not persuasive.

7. In reference to the Applicant's argument:

REMARKS

This communication is in response to the Office Action dated February 4, 2008 in which claims 1-9, 11-36, and 38 were pending. With the present response, claims 1-3, 5, 6, 9, 11-22, 25-27 and 34 are amended. Claims 4, 7, 8, 10, 23, 24, 30, 33 and 37 are cancelled. The remaining claims are unchanged. Reconsideration and allowance of all claims in their present condition are respectfully solicited in light of the following comments.

Claim Rejections - 35 U.S.C. § 101

Claims 1-9 and 11-26 were rejected under 35 U.S.C. §101 for allegedly reciting non-statutory subject matter. With the present response, Applicant has amended independent claims 1 and 22, as well as their associated dependent claims, such that the claims now recite a computer readable storage medium. The Examiner is respectfully requested to review Applicant's specification at page 6. At this point, Applicant draws a distinction between storage media and communication media. The Examiner will see that the definition of storage media does not include intangible items such as a carrier wave. Accordingly, it is respectfully submitted that the amendments make the first § 101 issue noted by the Examiner obsolete. Reconsideration and withdrawal of that portion of the § 101 rejection are respectfully solicited.

Beginning on the bottom of page 3 of the Office Action, the Examiner re-asserted a previous rejection under §101 related to the so-called final result achieved by claimed inventions. In response, Applicant wishes to communicate agreement that classification of a web page is a real world practical application for which claimed inventions can be used. Accordingly, Applicant respectfully requests that the second portion of the rejection under §101 be again withdrawn. Applicant appreciates the Examiner's patience in resolving this issue.

Examiner's response:

The amended claims of 1-3, 5, 6, 9, 11-22, 25, 26 overcome the 35 U.S.C. §101 rejection. Claims 27-29, 31, 32, 34-36, 38 remain rejected under 35 U.S.C. §101 for lack of a practical application.

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8. In reference to the Applicant's argument:

Claim Rejections - 35 U.S.C. § 102

Claims 1-8, 11-12, 18-20, 22-36, and 38 were rejected under 35 U.S.C. 102(b) as being anticipated by Masuichi ("A Bootstrapping Method for Extracting Bilingual Text Pairs"). Of these claims, claims 1, 22, 27, and 36 are independent claims.

With the present response, Applicant has essentially relocated the elements of dependent claims 4, 7 and 8 into the associated independent claim 1. Claims 4, 7 and 8 have been cancelled to accommodate these changes. Accordingly, independent claim 1 now further defines the claimed step of selecting instances uncertain to the first classifier. In particular, claim 1 limits this selection to selecting instances of unlabeled data "as a function of uncertainty." The claim goes even further and limits the selecting as a function of uncertainty to including a calculation of a value of uncertainty "used to select the instances uncertain to the first classifier." Then, the claim goes still further and limits the claimed selection to a process that includes selecting instances having "a value of uncertainty that is compared to a predetermined threshold."

This concept of comparing a value of uncertainty to a predetermined threshold was originally included in dependent claim 8. On page 8 of the Office Action, the Examiner rejected claim 8 and pointed to the Masuichi reference at column 1, on page 1068. The Examiner argued that the claimed "predetermined threshold" is equivalent to the "10 most reliable mutual proximity pairs" described in the cited reference. It is respectfully pointed out that the most reliable proximity pairs are in no way the same thing as a predetermined threshold applied to a value of uncertainty. As is made clear in the Applicant's claim 1, the claimed process of applying a threshold enables a selection of instances uncertain to the first classifier. The description in the reference of a selection of reliable mutual proximity pairs in no way performs such the claimed function. For at least this reason, it is respectfully submitted that independent claim 1 is in allowable form.

With the present response, independent claim 22 has been amended such that it now essentially includes the elements of former dependent claims 23 and 24. Claims 23 and 24 have been cancelled accordingly. Independent claim 22, as amended, recites creating an "augmented set" that includes first and second labeled sets. As claimed, the first labeled set is generated using the first classifier and the second labeled set is generated using the second classifier. Still further, as claimed, the first and second classifiers are reconstructed using the augmented set.

Examiner's response:

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The applicant states that 'the most reliable proximity pairs are in no way the same thing as a predetermined threshold applied to a value of uncertainty.' Masuichi states that the "10 most reliable mutual proximity pairs" indicates the predetermined value of uncertainty is 10. The term 'predetermined threshold' is only addressed in ¶0061 of the specification using equation 2, items 611 and 613 having probabilities to a predetermined threshold of 0 are selected as 'most uncertain.' Equation 2 is a probability equation, and there is no reason to think the variables could be set such that only 10 results would be an output.

9. In reference to the Applicant's argument:

The claimed reconstruction of the first and second classifiers was originally claimed in Applicant's dependent claim 24. On page 12 of the Office Action, the Examiner rejected claim 24 arguing that the cited Masuichi reference teaches reconstruction on page 1068. The Examiner essentially argues that increasing the number of English-Japanese pairs is the same thing as the claimed reconstruction step. It is respectfully pointed out that the additions to the English-Japanese pairs described in the cited reference is in no way equivalent to reconstructing a classifier using an augmented set as claimed. In no way does the cited reference teach or suggest using separate classifiers to label data in order to form an augmented set as claimed. The cited reference certainly does not teach or suggest generating such an augmented set and then using it to reconstruct the classifiers. For at least these reasons, it is respectfully submitted that independent claim 22 is in allowable form.

Examiner's response:

The Examiner feels that increasing the number of English-Japanese pairs is the same thing as the claimed reconstruction step. The applicant argues that the additions to the English-Japanese pairs described in the cited reference is in no way equivalent to

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reconstructing a classifier using an augmented set as claimed. The Examiner disagrees and is supported by the specification which describes two classifiers which are constructed in parallel, and exchange information with one another (§0003).

10. In reference to the Applicant's argument:

With the present response, independent claim 27 has been amended such that it now essentially includes the elements of former dependent claims 30 and 33. Claims 30 and 33 have been cancelled to support these changes. Claim 27, as amended, recites generation of first and second labeled sets. As claimed, the first label set is generated by applying the first classifier to the first unlabeled set. Similarly, the second labeled set is claimed as being generated by applying the second classifier to the second labeled set. The claim then goes on to further define applying the first classifier to the first unlabeled set as including a calculation of probabilities that the first classifier is unable to assign some unlabeled data to classes.

The element now included in claim 27 of calculating probabilities that the first classifier is unable to assign some unlabeled data to classes was originally included in dependent claim 33. On page 16 of the Office Action, the Examiner rejected claim 33 in light of the Masuichi reference on page 1067. The Examiner argues that the claimed calculation of probabilities is equivalent to a determination in the Masuichi reference of the cosine of the angle between two vectors. It is respectfully pointed out that the cosines determined in the Masuichi reference have absolutely nothing to do with the probability of assigning classes. For at least this reason, it is respectfully submitted that claim 27 is in allowable form.

Independent claim 36 is similar to independent claim 32 in that it includes a step of reconstructing a classifier utilizing a labeled set that is generated by labeling (i.e., assigning classes) unlabeled instances of data. Claim 36 is even narrower in that the labeling is limited to selected portions that are uncertain for a particular related classifier. For at least the same reasons discussed above in relation to the other independent claims, it is respectfully submitted that claim 36 is in allowable form. Reconsideration and allowance of claim 36 are respectfully solicited.

For at least the reasons discussed above, it is respectfully submitted that independent claims 1, 22, 27 and 36 are in allowable form. Further, it is respectfully submitted that

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the dependent claims that depend upon these independent claims are in allowable form at least based on their reliance upon what is believed to be an allowable independent claim. This is not to say that the dependent claims do not themselves recite limitations that are independently distinguishable.

Examiner's response:

The cosine between two vectors is an indication between the similarity of the two vectors. 'Similarity' infers classes.

Examination Considerations

11. The claims and only the claims form the metes and bounds of the invention.

"Office personnel are to give the claims their broadest reasonable interpretation in light of the supporting disclosure. *In re Morris*, 127 F.3d 1048, 1054-55, 44USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Limitations appearing in the specification but not recited in the claim are not read into the claim. *In re Prater*, 415 F.2d, 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969)" (MPEP p 2100-8, c 2, I 45-48; p 2100-9, c 1, I 1-4). The Examiner has the full latitude to interpret each claim in the broadest reasonable sense. Examiner will reference prior art using terminology familiar to one of ordinary skill in the art. Such an approach is broad in concept and can be either explicit or implicit in meaning.

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12. Examiner's Notes are provided to assist the applicant to better understand the nature of the prior art, application of such prior art and, as appropriate, to further indicate other prior art that maybe applied in other office actions. Such comments are entirely consistent with the intent and sprit of compact prosecution. However, and unless otherwise stated, the Examiner's Notes are not prior art but link to prior art that one of ordinary skill in the art would find inherently appropriate.

13. Examiner's Opinion: Paragraphs 11 and 12 apply. The Examiner has full latitude to interpret each claim in the broadest reasonable sense.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Claims 1-3, 5, 6, 9, 11-22, 25-29, 31, 32, 34-36, 38 are rejected.

Correspondence Information

16. Any inquiry concerning this information or related to the subject disclosure should be directed to the Examiner Peter Coughlan, whose telephone number is (571) 272-5990. The Examiner can be reached on Monday through Friday from 7:15 a.m. to 3:45 p.m.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor David Vincent can be reached at (571) 272-3080. Any response to this office action should be mailed to:

Commissioner of Patents and Trademarks,

Washington, D. C. 20231;

Hand delivered to:

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Receptionist,

Customer Service Window,

Randolph Building,

401 Dulany Street,

Alexandria, Virginia 22313,

(located on the first floor of the south side of the Randolph Building);

or faxed to:

(571) 272-3150 (for formal communications intended for entry.)

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have any questions on access to Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

/P. C./

Examiner, Art Unit 2129

Peter Coughlan

9/8/2008

/David R Vincent/

Supervisory Patent Examiner, Art Unit 2129